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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/987,409

11/14/2001

Kazunori Sakurai

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11/21/2003

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EXAMINER

KILDAY, LISA A

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,409

Applicant(s)

SAKURAI, KAZUNORI

Examiner

Lisa A Kilday

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment on 8/30/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1) ☒ Certified copies of the priority documents have been received.
2) ☐ Certified copies of the priority documents have been received in Application No. _____.
3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

Response to Arguments

Applicant's arguments with respect to claims 1-7, 17-18 filed in the amendment and interview on 9/5/03 have been considered but are moot in view of the new ground(s) of rejection. Although the examiner indicated allowable subject matter in the interview on 9/5/03, the claims are not allowable after reviewing Tsukahara '093 which anticipates the instant claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukahara (6,051,093). In re claim 1, Tsukahara in figs. 14a-d discloses a method of manufacturing a semiconductor device comprising: preparing a wiring substrate (4) having a base substrate on which are formed interconnecting lines (33); mounting a semiconductor chip (1) on the base; melting the base substrate, while bumps (15) provided on the semiconductor chip are pressed into the base substrate and electrically connecting the bumps to the interconnecting lines (abstract; col. 8, lines 40-65).

In re claim 2, Tsukahara discloses the method of manufacturing a semiconductor device, wherein the interconnecting lines comprise connecting portions electrically connecting with the bumps (shown on top of the substrate (4) in figure 8(d)), and wherein in the step of electrical connection, the base substrate is melted, so that

connections of the bumps and the connecting portions are sealed with the melted material of the base substrate (col. 8, lines 55-60).

In re claim 3, Tsukahara discloses that the melted material of the base substrate is adhered closely to a surface of the semiconductor chip (col. 8, lines 55-66).

In re claim 4, Tsukahara discloses wherein in the step of electrical connection, the base substrate is melted by heat (col. 8, lines 59-60).

In re claim 5, Tsukahara discloses wherein a thermoplastic resin is used as the base substrate (col. 8, lines 43-45).

In re claim 6, Tsukahara discloses wherein in the step of electrical connection, the semiconductor chip is held by a jig (17), heat is applied to the jig to heat at least the bumps (15) of the semiconductor chip, and the jig is pressed in the direction of the base substrate (4), whereby the bumps (15) are pressed into the base substrate (4) (col. 8, lines 55-60).

In re claim 7, Tsukahara discloses further comprising: mounting another semiconductor chip on the wiring substrate (fig. 11; col. 8, lines 1-16).

In re claim 17, Tsukahara discloses wherein in the step of mounting the semiconductor chip, the bumps (15) are contacted on a surface of the base substrate (4).

In re claim 18, Tsukahara discloses a method of manufacturing a semiconductor device including a step of mounting a semiconductor chip on a wiring substrate (4) having a base substrate on which are formed interconnecting lines (33), the method comprising: mounting the semiconductor chip (1) on the base substrate so that a

surface of the base substrate opposite to the surface on which the interconnecting lines are formed is in contact with bumps (15) formed on the semiconductor chip; and electrically connecting the bumps to the interconnecting lines by heating at least the bumps and pressing the semiconductor chip toward the base substrate so that the base substrate is melted and the bumps are pushed into the base substrate (fig. 14a-d; abstract; col. 8, lines 40-65).

Double Patenting

Claims of the instant application may be subject to a provisional rejection under the judicially created doctrine of obviousness-type double patenting as being unpatentable copending Application No. 09/794,666 depending on the final forms of the claims in both applications. The instant claims are not subject to double patenting, but may be subject to provisional double patenting depending on the final form of the claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imasu et al. (6,208,525).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0957. See MPEP 203.08.

Any inquiry concerning this communication from the examiner should be directed to Lisa Kilday whose telephone number is (703) 306-5728. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo, can be reached on (703) 308-1233. The fax number for the group is (703) 305-3432. MPEP 502.01 contains instructions regarding procedures used in submitting responses by facsimile transmission.

Lisa Kilday

LAK

11/13/03

